



AVIATION COMMITTEE

LtCol Jon Rebholz
2D MAW DSS

Naval Aviation Six Month Update



Navy-Marine Corps Safety Council
21Sept 2004

Naval Aviation Mishap Reduction Plan



- **Naval Aviation's Goal: Reduce Class A Flight Mishaps by 50% Within Two Years**
- **Guiding Precepts:**
 - The Near Term Goal is Achievable Through Existing Programs and Strategies with Minimal Additional Resourcing.
 - Long Term Sustainment of Reduced Mishap Rates will require Leadership commitment to and increased Resourcing for development and fielding of new and proven technologies, expanded data and metrics initiatives resulting in enhanced leading indicators for mishap prediction and intervention, and ORM based assessment of high risk training evolutions with questionable readiness and tactical returns.
 - Business as usual and within existing resourcing will not sustain the effort.



Naval Aviation Mishap Reduction Plan



- **Near Term - Achieving the Goal**

- ORM & Fundamentals Campaign – Navy & USMC Aviation
 - 100% ORM Fundamentals Trained
 - Community ORM Review Boards
 - ORM Assessment of Each TMS Community
 - Community ORM/Safetygrams
 - Mandatory Culture Workshops & Safety Surveys
 - Mandatory CSA/MCAS

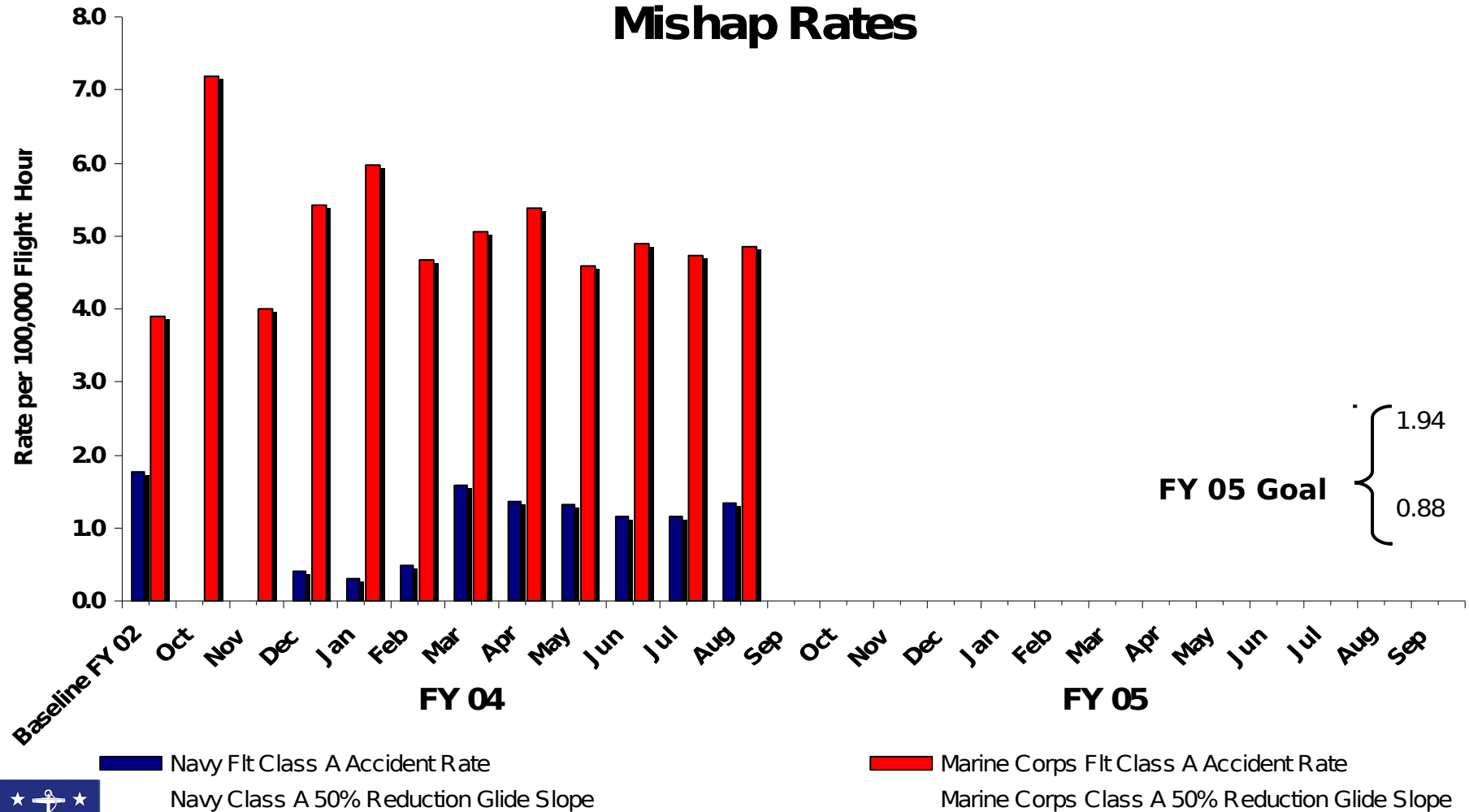
- **Long Term - Sustaining Mishap Reduction**

- Complete/Accelerate (if possible) Installation of Required Safety Systems
 - GPWS/TAWS
- Military Flight Operations Quality Assurance (MFOQA)
- Post-flight Data Collection Tool for HF Predictability
- New Data Mining Initiatives for Mishap Leading Indicators



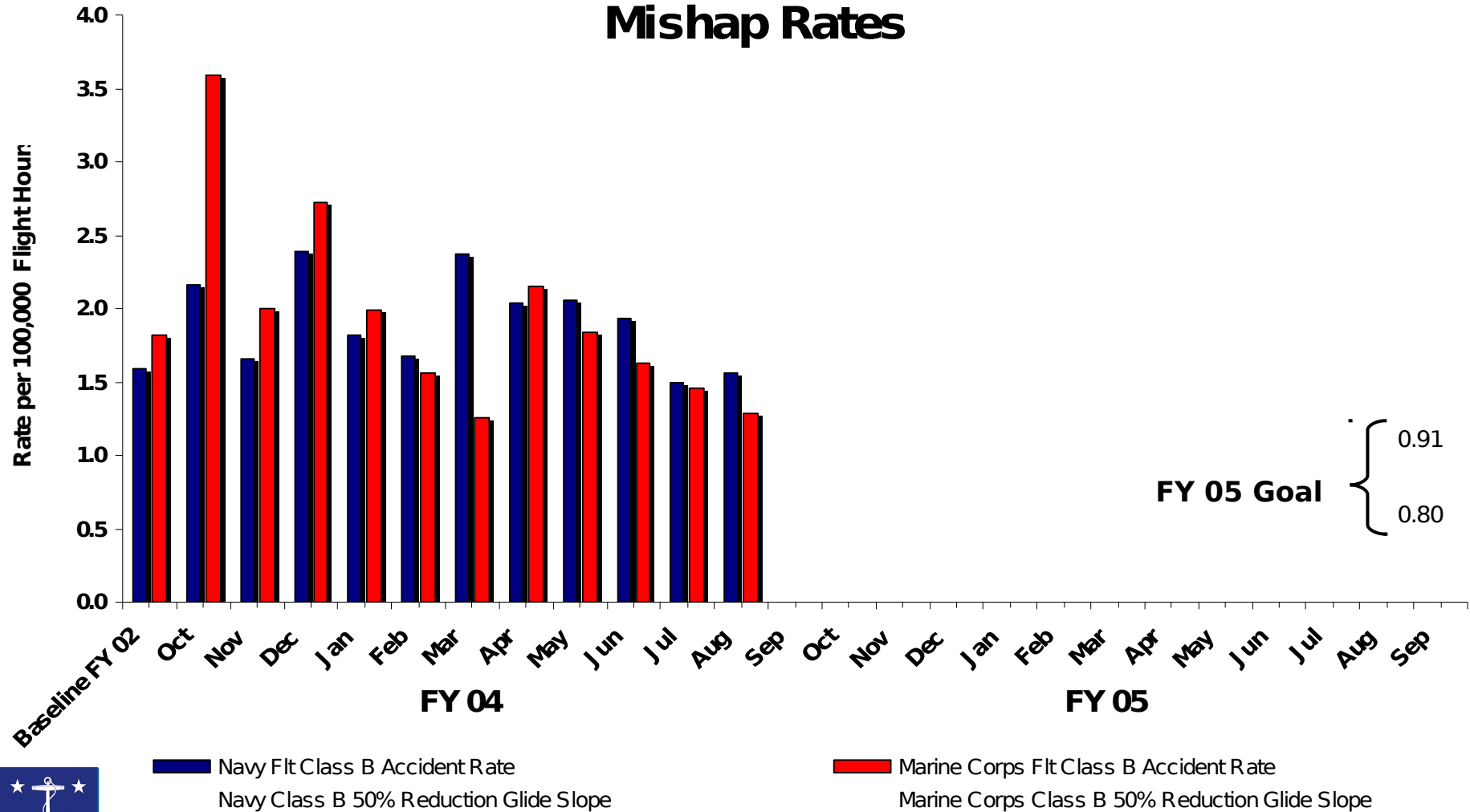


FY 04 Class A Flight Mishap Rates





FY 04 Class B Flight Mishap Rates



Naval Aviation Mishap Reduction Plan



- **Is the plan Working?**

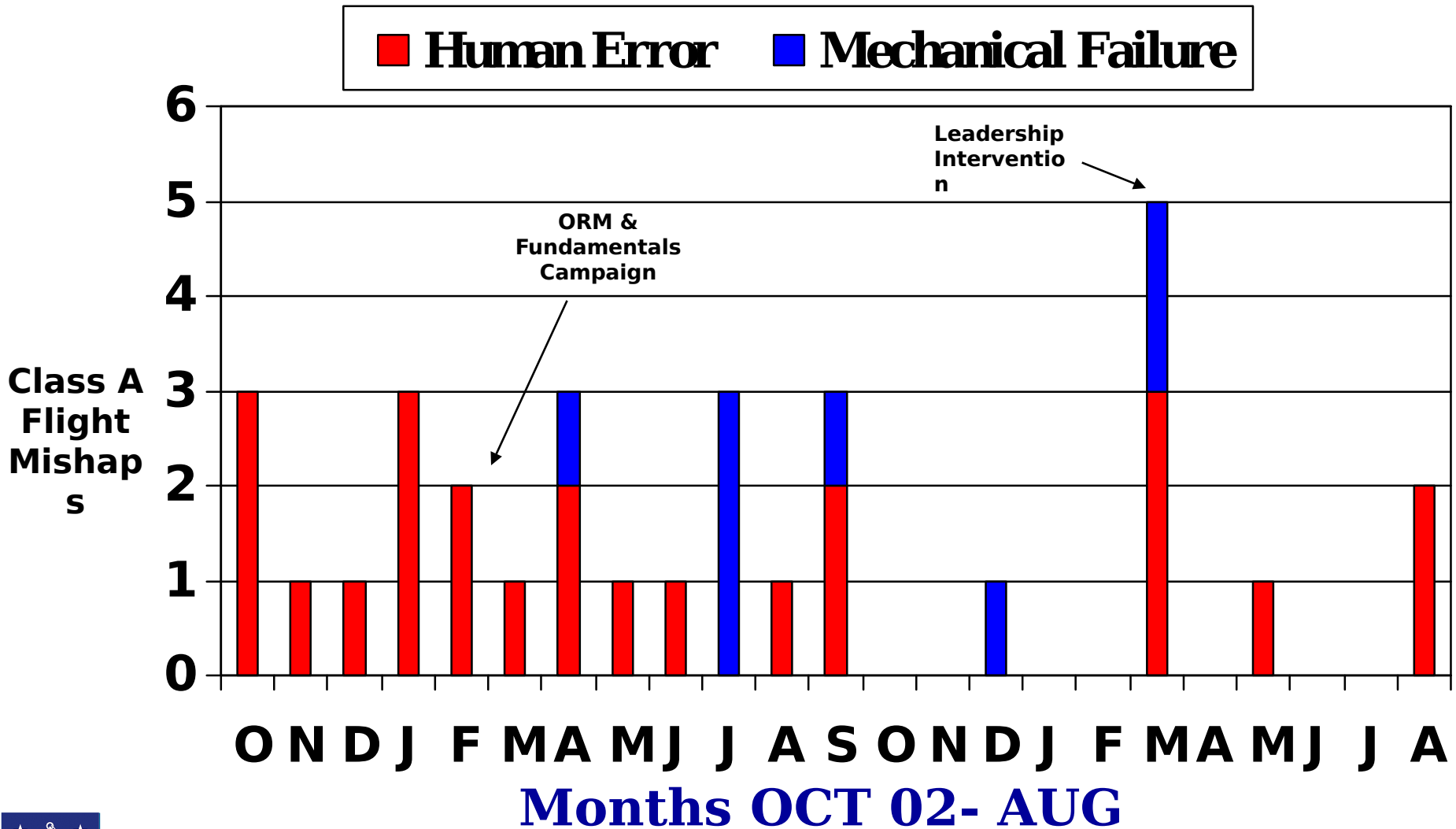
- CNAF is the model
 - First to implement ORM Fundamentals Campaign





CNAF All TMS Class A FMs: Oct

02- Aug04



Naval Aviation Mishap Reduction Plan



- **Overall Program Status**

- Near Term

- Implementing ORM & Fundamentals Campaign

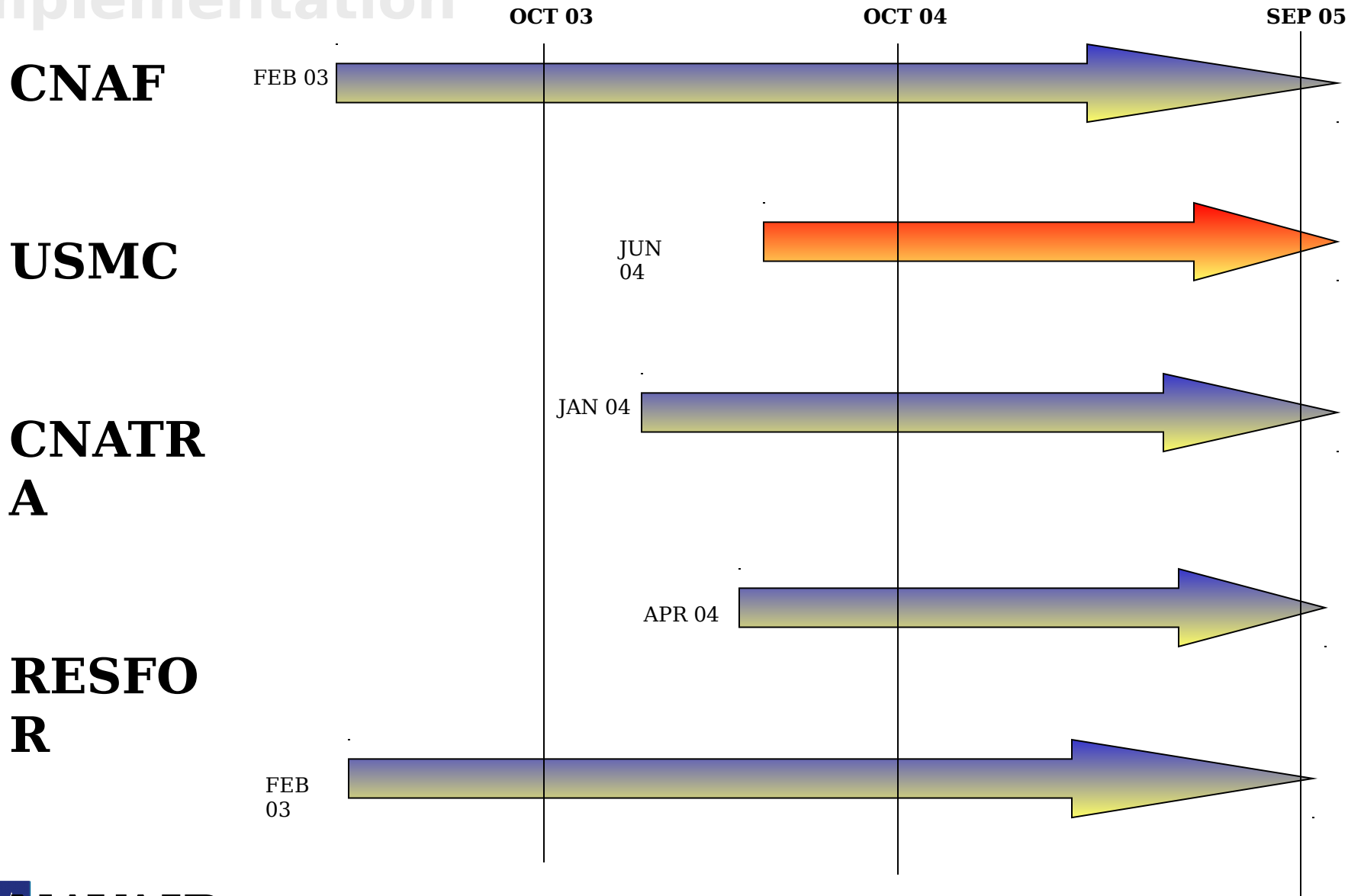
- Long Term

- Complete/Accelerate (if possible) Installation of Required Safety Systems
 - » GPWS/TAWS
 - Military Flight Operations Quality Assurance (MFOQA)
 - New Data mining initiatives





Near Term - ORM Fundamentals Implementation

**NAVAIR**

Navy-Marine Corps Safety



Long Term - GPWS/TAWS

Funding/Installation

- **Funding for New/Reman aircraft was the focus in POM-06...now at OSD.**
- **If approved, funding will be available to equip reman H-1 and new H-60 (464 a/c)...residual requirement beyond FYDP.**
- **MV-22 will be PR-07 issue...all remaining new/reman are funded.**
- **All troop transport/passenger carrying a/c funded...except executive a/c being replaced.**
- **Final Installs for C-2A & CH-46E in 05 on schedule.**
- **Planned installs for EA-6B & T-45 in 05-09 reduced slightly due to a/c availability.**
- **Planned software releases on schedule.**





Long Term - MFOQA

Military Flight Operations Quality Assurance

STATUS:

- **FUNDING:** \$9.4M for Operational Demos FY05/06
 \$54.5M across FYDP added to FY06 Budget for
 Fleet Implementation.

- **PLATFORMS** (1) Operational Demos/Acft Assessment:
 F/A- 18, MH-60, V-22; T-45, CH-53E, AV-8B

- (2) DT/OT beginning FY07
 F/A-18, MH-60, T-45, V-22





Long Term - Data Mining

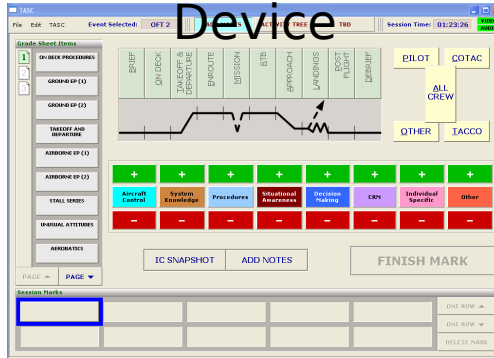
- Navy Post Graduate School/School of Aviation Safety CSA/MCAS Data Mining
 - Discovering/Understanding Mishap Leading Indicators (Human)
 - Current Research Focus: Comparing Naval Safety Center Mishap Data to CSA/MCAS Data
 - Finding association between command climate survey responses and mishap potential
 - Potential predictive tool for CO regarding mishap potential based on command survey responses for early intervention
 - CSA/MCAS Funding for FY-05
 - \$423K CNAF
 - \$180K USMC
 - Working Toward Joint Service Survey Tool
 - Army Aviation has requested survey development in 1st qtr FY-05
 - Potential for data to compare service cultural differences





New Initiative –Data Collection

Instructor Marking Device



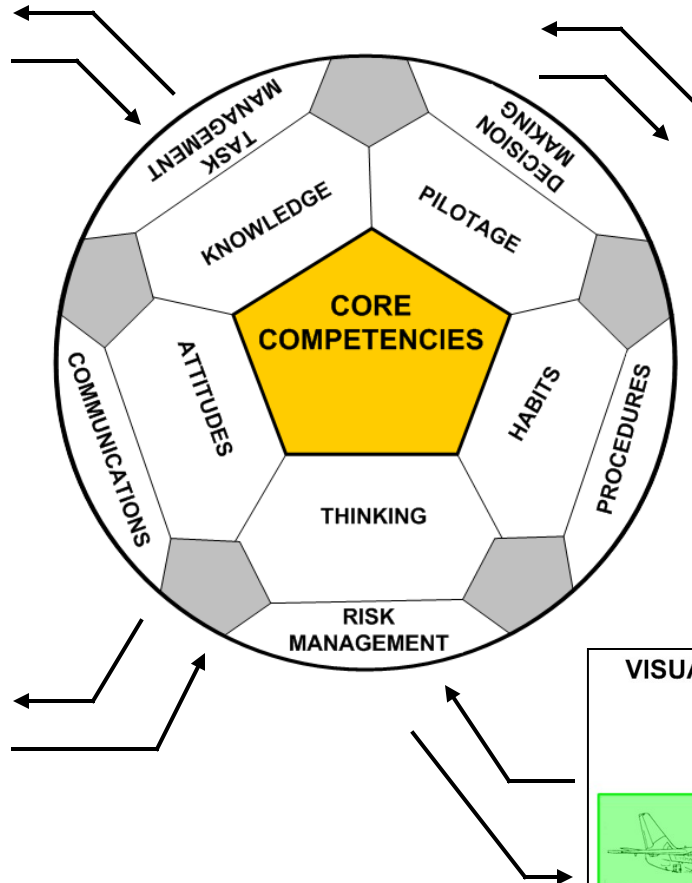
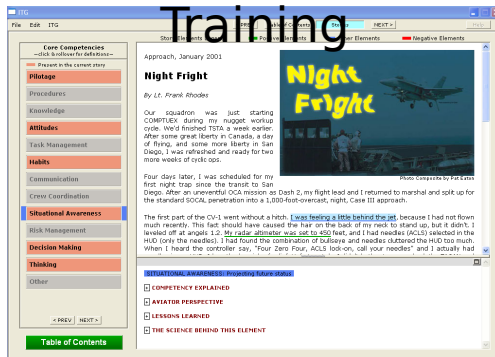
Crew Reported Post-flight Data Collection

POST-FLIGHT PERSPECTIVE for mishap prevention

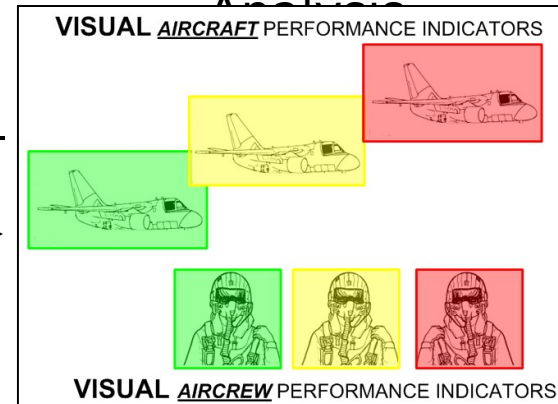
AREA OF INTEREST	ERROR TRAPPING SKILLS	BRIEF	ON DECK	TO	DEP	THRN	MSN	RCVY	END
SITUATIONAL AWARENESS Number of occurrences: 2	Needs Improvement (Red)	Adequate (Yellow)	Outstanding (Green)	2					
JUDGEMENT Number of occurrences: 1	Needs Improvement (Red)	Adequate (Yellow)	Outstanding (Green)			1			
FLYING SKILLS Number of occurrences: 3	Needs Improvement (Red)	Adequate (Yellow)	Outstanding (Green)			1		2	
SAFETY OF FLIGHT Number of occurrences: 1	Needs Improvement (Red)	Adequate (Yellow)	Outstanding (Green)			1			
CREW COORDINATION Number of occurrences: 2	Needs Improvement (Red)	Adequate (Yellow)	Outstanding (Green)			1		1	
OTHER (Enter Text Here) Number of occurrences: 0	Needs Improvement (Red)	Adequate (Yellow)	Outstanding (Green)						

De-identified Demographics: ☒ Pilot ☐ NFO ☒ Instructor ☐ Student ☒ Single Ship ☐ 2 Ship ☐ 3 Plane ☐ 4 Plane ☐ Flight Lead ☐ Wingman ☒ Tmg Event ☐ Ops Event ☐ Home Plate ☒ Deployed

Human Factors Training



Color Coded Analysis



New Initiative - Marine Safety



Mission

“2D MAW LEAD A COMMITTEE TO IDENTIFY CRITICAL DEFICIENCIES AND TO MAKE RECOMMENDATIONS THAT WE CAN IMPLEMENT ACROSS MARINE AVIATION TO REDUCE MISHAPS. I ASK THAT 2D MAW REPORT OUT AT THE MARINE AIR BOARD IN SEPTEMBER THE RESULTS OF THIS EFFORT.”

**(DCMC(A) - R 232126Z JUL 04
AVIATION SAFETY)**





Deficiencies



➤ Two main categories

➤ **Flight Related** - BASIC FUNDAMENTALS, FLIGHT LEADERSHIP SKILLS, LACK OF EXPERIENCE, CRM SKILLS

➤ RECOMMENDATIONS

- ADD BASIC AIRMANSHIP MPS INTO T/R HOPS
- OPTIMIZE USE OF SIMS
- USE FRS INSTRUCTORS AS NATOPS/INST INSTRUCTORS IN FLEET
- UPGRADE SIMS

➤ **Resources & Manning** – MANNING, PEACETIME POLICIES, IN WAR TIME, TRAINING CYCLE

➤ RECOMMENDATIONS

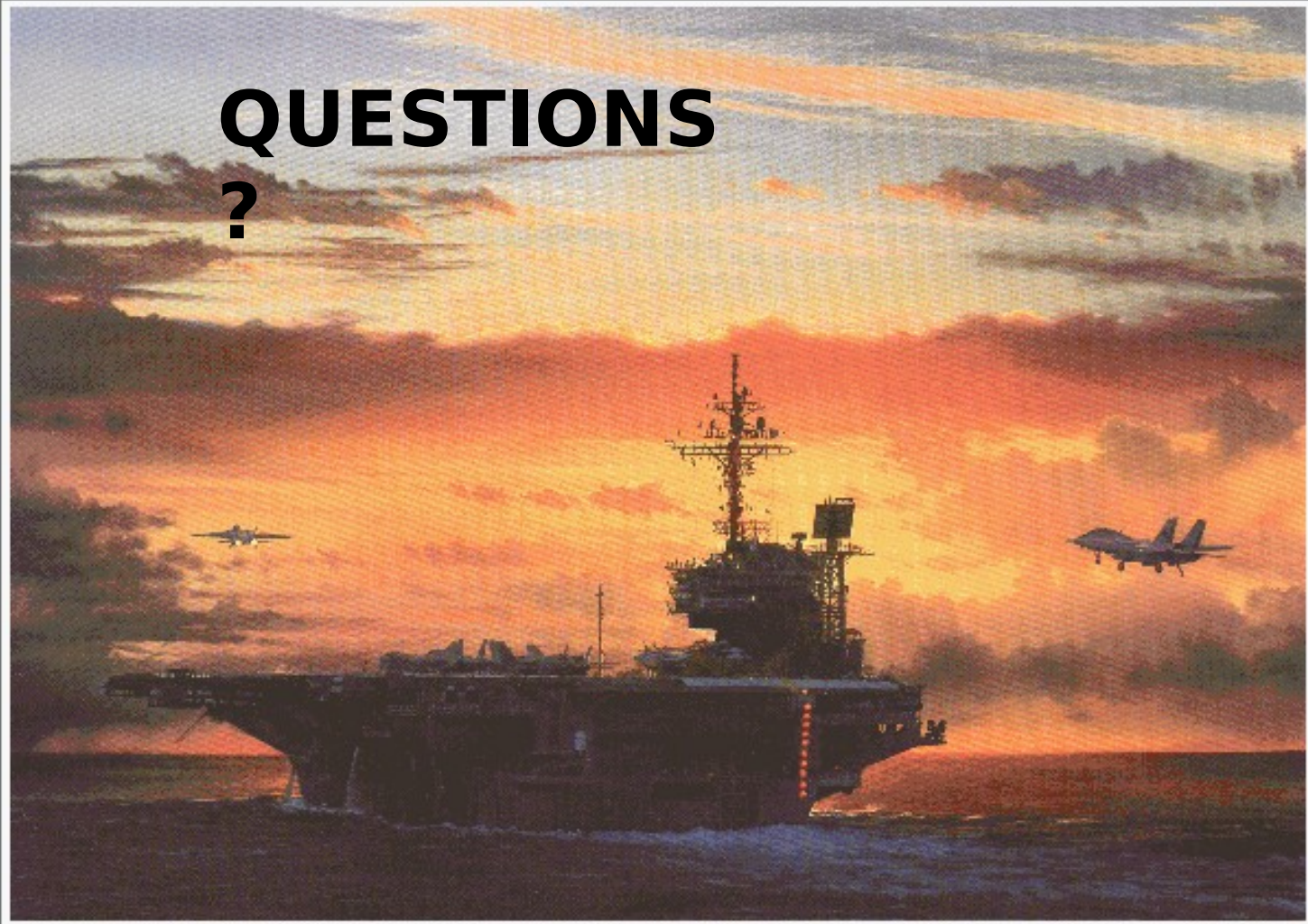
- ID MISSION PRIORITIES
- NEED MISSION/ROLES REVIEW
(OUTSIDE LOOK I.E. HARP 98)



Naval Aviation Mishap Reduction Plan



**QUESTIONS
?**



Navy-Marine Corps Safety



Near Term Actions - On Track

- **ORM & Fundamentals Campaign**

- ORM Institutionalization
- Expanded Use of Proven Safety Tools
- Enhanced Communications
- Leadership Involvement

- **Near Term Specifics:**

- **All Navy & Marine Corps Aviation Personnel**

- 100% Trained in ORM Fundamentals - **Completed August 2004**

- **All Type Wings or Model Managers**

- Form Permanent Community ORM Review Boards - **Completed August 2004**
 - USMC, RESFOR, NAVAIR, CNATRA - Merge with existing CNAF Boards (F/A-18, etc.) or Model Manager led Stand-up (AV-8, T-45, etc.)
 - Perform Initial ORM Review of Community - Top Risk Areas
 - » Initial Meeting NLT **On going** - Report to TYCOM/MAW
 - » Biannual Meetings Thereafter - Report to TYCOM/MAW





Near Term Actions - On Track

- All Type Wings or Model Managers (Continued)

- Publish Monthly Community ORM/Safetygram
 - First NLT Navy-Completed, Marines - On going
 - Monthly Thereafter - Rotate Through Squadrons

- All Navy & Marine Corps Squadrons

- Safety Surveys: Mandatory all Squadrons - On - Going
 - Sea/Deployable: Every IDRC
 - Shore: Every Two Years
- Culture Workshops: Mandatory all Squadrons - On - Going
 - Sea/Deployable: Every IDRC
 - Shore: Every Two Years
- CSA/MCAS Baseline Survey: NLT Completed - August 2004

Mandatory Quarterly CSA Re-surveys Thereafter

- Mandatory Semi-Annual MCAS Re-surveys Thereafter





Near Term – Meeting the Goal – On Track

- **Accountability – Compliance & Engagement**

- Qtrly Progress Reports to Type Wing/Model Manager
 - Squadron/Unit ORM Training
 - Squadron/Unit Survey & Workshop Compliance – How are we addressing what these tools have revealed to us?
- Qtrly Consolidated Report to TYCOM/MAW
 - All Squadron/Unit Compliance – What have we Learned/Changed?
 - ORM Review Board After Action – What have we Learned/Changed?
- Major Unit CO [CAG, Type Wing, etc.] Brief Details of Class A/B Mishaps to Type Commander within 24 hours

- **Institutionalization** Working Group Formed August 2004

- **Review orders and initiate changes**
 - OPNAV 3750.6R
 - All Subordinate Directives





Long Term - GPWS/TAWS Installation

- GPWS/TAWS Installs per Year
 - FY-05 = 60 (Final Installs for C-2A & CH-46E)
 - FY-06 = 8 (Embedded GPWS for EA-6B & T-45)
 - FY-07 = 39 (Embedded GPWS for EA-6B & T-45)
 - FY-08 = 53 (Embedded GPWS for EA-6B & T-45)
 - FY-09 = 59 (Embedded GPWS for EA-6B & T-45)
 - FY-10 = 24 (Embedded GPWS for T-45)
 - To Comp = 111 (Embedded GPWS for T-45)
- NOTE: VP/UP-3 & KC/C-130T/R/F Installs Complete. CH-53D/E & MH-53E Installs should be complete by end of FY-05.
- All F/A-18 & AV-8B have embedded GPWS Installed
- Planned Software Releases:
 - F/A-18E/F TAWS = Fielding beginning 1st Qtr FY-05
 - MH-60R/S = Fielding beginning FY-08
 - AH-1Z/UH-1Y = Fielding beginning in FY-09
 - E-2 Advanced Hawkeye = Fielding beginning in FY-09





Long Term - Sustaining Mishap Reduction

Control Measures: GPWS/TAWS

1. Software Solution: AH-1Z, UH-1Y, MH-60R/S & MV-22 A, B&C (518 A/C)
2. Hardware Solution: VH-60 (8 A/C) and MV-22 Block A (24 A/C) APN-5
3. POM-06 Provides Total Compliance (CAT A)

Current POM-06 Cost of GPWS/TAWS = \$85.4M

Cost Avoidance = 25 Lives & 8 A/C (\$308M)

ROI = 3.6 to 1 & 25 Lives





Long Term - Sustaining Mishap Reduction

Procure / Install Schedule



Control Measures:

1. PWS-06



2. POM-06 Funding



3. Software Solutions



4. Hardware Solutions





Program Status

MFOQA

Military Flight Operations Quality

Assurance

- Proactive approach to improved readiness and mishap reduction through routine visualization/analysis of flight data
- NAVAIR BCA: >200% ROI over 5 yrs
- Successful Proof of Concept Demos (F/A-18 and SH-60)
 - VMFAT-101 (F/A-18C), NTPS (F/A-18B), and HSL-41 (SH-60B)
- Operational Fleet Demos now underway to develop MFOQA CONOPS, establish policy, and fine-tune TMS requirements and develop acquisition strategy
 - \$9.4M approved for Op demos/acft assessments across numerous communities
- **SECNAV added MFOQA Implementation Funds to FY06 Budget**
 - \$4.5M in FY06 \$54.5M across FYDP.
 - Offsets provided by Aircraft Maintenance
 - F/A-18, MH-60, T-45, MV-22





MFOQA Funding

MFOQA IMPLEMENTATION COST AND ESTIMATED SAVINGS									
Note: "X" denote implementation year									
	FY06	FY07	FY08	FY09	FY10	FY11	To Complete	Total Cost	FYDP Savings
Core	\$2.3	\$3.4	\$3.7	\$2.7	\$2.0	\$1.8	\$2.4	\$18.3	
F/A-18 E/F	\$2.0	\$3.5	\$2.8	\$1.5	\$0.8	\$0.6	\$0.4	\$11.6	
IMPLEMENT		X	X	X					
O&MN Aircraft maintenance			\$5.0	\$5.0	\$5.0	\$5.0			20
APN-1 cost avoidance			\$74.0		\$74.0				148
MH-60R/S	\$0.2	\$2.9	\$2.6	\$2.4	\$1.2	\$0.5	\$0.5	\$10.3	
IMPLEMENT			X	X	X				
O&MN Aircraft maintenance				\$5.0	\$5.0	\$5.0			15
APN-1 cost avoidance				\$26.0					26
T-45 *	\$0.0	\$0.0	\$2.8	\$3.0	\$1.5	\$1.6	\$1.3	\$10.2	
IMPLEMENT				X	X	X			
O&MN Aircraft maintenance					\$5.0	\$5.0			10
APN-1 cost avoidance									
V-22B	\$0.0	\$0.0	\$2.2	\$3.3	\$1.6	\$1.6	\$1.3	\$10.0	
IMPLEMENT				X	X	X			
O&MN Aircraft maintenance					\$5.0	\$5.0			10
APN-1 cost avoidance						\$84.0			84
Total implementation Cost	\$4.5	\$9.8	\$14.1	\$12.9	\$7.1	\$6.1	\$5.9	\$60.4	
Total APN-1 cost avoidance			\$74.0M	\$26.0M	\$74.0M	\$84.0M			258
Total O&MN Aircraft maintenance			\$5.0	\$10.0	\$20.0	\$20.0			55
IMPLEMENTATION COST SUMMARY \$M									
	FY-06	FY-07	FY-08	FY-09	FY-10	FY-11	PE	BLI	CL
RDTE,N	4.5	9.8	TBD	TBD	TBD	TBD	0604215N	W0572	NAVAIR
APN-5	-	-	TBD	TBD	TBD	TBD	0204161N	057700	NAVAIR
total	4.5	9.8	\$14.1	\$12.9	\$7.1	\$6.1			
NAVAIR to determine RDTE/N/APN split in FY-08 and beyond									





Long Term - Sustaining Mishap Reduction

- **Supporting Elements for Long Term Sustainment**
 - **Develop/Support/Implement Additional Technologies, Data Mining Initiatives and Training Innovations -**

The Prioritized Target List

- Data Analysis for Mishap Predictors/Leading Indicators
- Human Factors Prediction
- Training Risk Assessment
- Operational Risk Management Assessment System (ORMAS)
- Scenario Realization Training
- USCG Standardization
- Tactile Situation Awareness System (TSAS)
- Expanded Safety Culture/Risk Management Education

